



Massachusetts Department of Environmental Protection

Source Water Assessment and Protection (SWAP) Report

for

Briggsville Water District

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- ? Inventory land uses within the recharge areas of all public water supply sources;
- ? Assess the susceptibility of drinking water sources to contamination from these land uses; and
- ? Publicize the results to provide support for improved protection.

SWAP and Water Quality

Susceptibility of a drinking water source does *not* imply poor water quality. Actual water quality is best reflected by the results of regular water tests.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Prepared by the
Massachusetts Department of
Environmental Protection,
Bureau of Resource Protection,
Drinking Water Program

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Table 1: Public Water System (PWS) Information

<i>PWS Name</i>	Briggsville Water District
<i>PWS Address</i>	47 Cross Road
<i>City/Town</i>	Clarksburg, Massachusetts
<i>PWS ID Number</i>	1063003
<i>Local Contact</i>	Mr. Clebe Scott
<i>Phone Number</i>	413-663-3985

Zone II GIS ID # 586

<i>Spring Name</i>	<i>Zone I, ft (sqauret)</i>	<i>Susceptibility</i>
Red Mill Spring	1063003-01G	Moderate

Introduction

We are all concerned about the quality of the water we drink. Groundwater sources may be threatened by many potential contaminant sources, including septic systems, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential contaminant sources, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes:

1. Description of the Water System
2. Discussion of Land Uses within Protection Areas
3. Recommendations for Protection
4. Attachments, including a Map of the Protection Areas

1. Description of the Water System

Briggsville Water District is a small community system that serves a residential population of approximately 180 in the Briggsville section of Clarksburg. Clarksburg is a small, primarily rural, residential community in the northwest corner of Massachusetts with limited commercial and industrial activity. The District maintains one spring source

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and an Interim Wellhead Protection Area (IWPA).

- **The Zone I** is the area that should be owned or controlled by the water supplier and limited to water supply activities.
- **The IWPA** is the larger area that is likely to contribute water to the well.

In many instances the IWPA does not include the entire land area that could contribute water to the well. Therefore, the well may be susceptible to contamination from activities outside of the IWPA that are not identified in this report.

What is Susceptibility?

Susceptibility is a measure of a well's potential to become contaminated due to land uses and activities within the Zone I and Interim Wellhead Protection Area (IWPA).

of water, the Red Mill Spring that provides water to the system by gravity flow. The general public utilizes the overflow from the system's cistern as a spring water source.

The system consists of collection cisterns with a concrete storage facility constructed on a steep embankment, immediately south of the North Branch of the Hoosac River and east of the confluence of an unnamed brook with the river. The USGS has identified the spring as a bedrock spring, discharging water from fractured bedrock. The bedrock is mapped as the Hoosac Schist, a quartz, biotite schist. The hill upgradient of the spring and delineated as the Zone II contribution area of the spring, is mapped as a structural anticline. The immediate vicinity of the spring has some minor unconsolidated sand and gravel materials of undetermined thickness. The collection boxes were constructed in the sand and gravel and the area graded to protect the springs from surface influences. There is no evidence of a significant and continuous protective, confining unit within the contribution area to protect the source from activities conducted on the land surface. Sources located in aquifers such as this are considered to be highly vulnerable to contamination from activities conducted within the recharge areas.

The Zone I is the most protected area around a groundwater source. The Zone I for a spring is a square area centered on the source in the direction of flow with the source 50 feet from the downgradient edge of the Zone I. The lengths of the sides of the square are based on the estimated flow from the spring or estimated volume of water used from the source. The maximum estimated flow from the springs was over 175 gallons per minute and therefore the length of the sides of the square Zone I area is 800 feet. The USGS was contracted by the DEP to determine the contribution areas (Zone II) to spring sources as part of the SWAP program. Please refer to the enclosed map for the outline of the protection areas for the District's source. The entire Zone I and Zone II areas are forest and residential development. You may request additional, current information regarding the quality of the water, from the local contact listed in Table 1. Low levels of tetrachloroethylene are routinely detected in the water sampled downstream of the spring. The source of the compound is believed to be from a length of vinyl lined, asbestos-concrete distribution pipe and it is not in the source water. The District controls the levels through a flushing program and continuously bleeding water through the lines. Please refer to the attached maps of the Zone I and Zone II protection areas and Table 2 for additional assessment information.

2. Discussion of Land Uses in the Protection Areas

Table 2: Table of Activities within the Water Supply Protection Areas

Potential Contaminant Sources	Zone I	Zone II	Threat	Comments
Non-Conforming Zone I	Yes	-	-	Contact DEP prior to expanding or conducting any activities in Zone I
Transportation corridor	Yes	Yes	Moderate	Limit road salt usage and provide drainage away from wells
Residential	Yes	Yes	Moderate	Supply BMPs to residents
Septic system components	Yes	Yes	Moderate	Supply BMPs to residents

-For more information on Contaminants of Concern associated with individual facility types and land uses please see the SWAP Draft Land Use / Associated Contaminants Matrix on DEP's website - www.state.ma.us/dep/brp/dws/.

Glossary

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. To determine your Zone I radius, refer to the attached map.

IWPA: A 400-foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone II. To determine IWPA radius, refer to the attached map.

Zone II: The primary recharge area defined by a hydrogeologic study.

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

There are a few land uses and activities within the drinking water supply protection areas that are potential sources of contamination.

Key issues include:

1. **Non-conforming Zone I**
2. **Residential land use**
3. **Transportation corridors and right-of-way**

The source is located in an aquifer with a high vulnerability to contamination due to the absence of a significant hydrogeologic barrier to prevent contaminant migration. The overall ranking of susceptibility to contamination for the system is moderate, based on the presence of at least one moderate ranked activity in the protection areas, as seen in Table 2.

1. Non-conforming Zone I – The District does not own or control the entire Zone I for its source. DEP requires ownership or control of Zone I and restrictions for Zone I allowing only water supply related activities in Zone I or activities that do not pose a potential threat. Please note that systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying systems. There are two abandoned homes and at least three occupied residential properties as well as the road, in Zone I.

Recommendations:

- ✓ Maintain control of access to the spring and control surface runoff in the area.
- ✓ Monitor activities in the recharge areas and consider acquiring additional land to protect the sources in the future.
- ✓ Pursue options for acquiring ownership or control of Zone I.

2. Residential Land Use – There are several residences within the IWPA protection area. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

- **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems leach to the ground. If septic systems fail or are not properly maintained they could be a potential source of microbial contamination.

- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.
- **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground and streams. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automobile leaks, maintenance, washing, or accidents. Visit the Nonpoint Source pollution web site for additional information and assistance at <http://www.state.ma.us/dep/brp/wm/nonpoint.htm>.

Residential Land Use Recommendations:

- ✓ Educate residents on best management practices (BMPs) for protecting water supplies. Distribute the

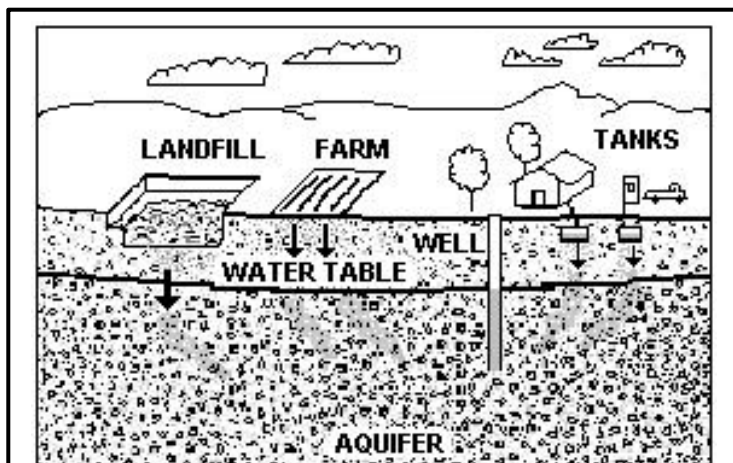


Figure 1: Example of how a well could become contaminated by different land uses and activities.

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

For More Information:

Contact Catherine Skiba in DEP's Springfield Office at (413) 755-2119 for more information and for assistance in improving current protection measures.

More information relating to drinking water and source protection is available on the Drinking Water Program web site at: www.state.ma.us/dep/brp/dws/

fact sheet "Residents Protect Drinking Water" which is attached in Appendix A and is also available at the website www.mass.gov/dep/brp/dws/protect.htm, where BMPs are provided for common residential issues.

- ✓ Consider inventorying heating sources in the Zone II area including USTs.
- ✓ Inventory home occupations that may pose a potential threat to the water source, as appropriate.

3. Transportation corridor and right-of-way – The Zone II includes primarily rural residential roads that are relatively lightly traveled. The greatest threats from roads are deicing materials, an accidental spill, and illegal access. There is also a utility right-of-way through the Zone II. Rights-of-way are often maintained for vegetation control.

Transportation corridor and right-of-way Recommendations:

- ✓ Work with the Town to ensure that road runoff is directed where feasible, to water quality swales.
- ✓ Prepare an Emergency Response Plan that includes coordination between the DEP, the Water District, the Town and State Police in the event of an accident within the protection areas.
- ✓ Review the Yearly Operating Plan (YOP) for the utility to ensure that they are utilizing current maps that show the Zone II contribution area for the spring. Contact the North Adams Conservation Commission regarding the YOP.

3. Protection Recommendations

Implementing protection measures and best management practices (BMPs) will reduce the well's susceptibility to contamination. With the delineation of the Zone II contribution areas for the spring, the District should review the existing protection plan, update information as appropriate and work with the community in development of additional protection strategies as appropriate. Please review and adopt the key recommendations listed above, as is feasible.

Zone I:

- ✓ Prohibit non-water supply activities in Zone I.
- ✓ Continue regular inspections of the Zone I. Monitor for evidence of unauthorized access.
- ✓ Monitor activities and if there is evidence of increased activity or access, consider fencing and gating the immediate area around the spring.

Facilities Management:

- ✓ Consider long term plans for water main replacement and additional land acquisition

Planning:

- ✓ Conduct a detailed review of land and land use within the delineated recharge area. Monitor proposed development and activities within the recharge area. Work with the Board of Health and Planning Board to protect the areas.
- ✓ Have a plan to address short-term water shortages and long-term water demands. Keep the phone number of a bottled water company readily available and continue assessment of future needs of the system.
- ✓ Consider acquiring additional land and monitor proposed activities in the recharge areas. Recent experience has shown that activities such as logging upgradient from spring sources can impact water quality.

Supplement the SWAP assessment with additional local information and incorporate it into water supply educational efforts. Use a potential contaminant threat inventory to assist in setting priorities, focusing inspections, and creating educational activities. These recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to encourage discussion of local drinking water protection measures.

4. Attachments

- ✓ Map of the Public Water Supply (PWS) Protection Area
- ✓ Recommended Source Protection Measures Fact Sheet